F·A·A·M facility for airborne atmospheric measurements

FLIGHT FOLDER

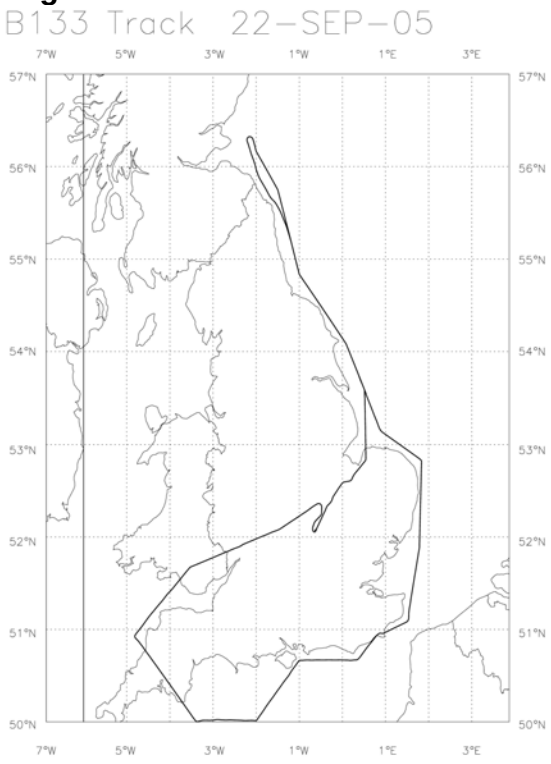
Flight No.:	B133
Date:	22 Sep 2005
Take Off	09:59:56
Landing:	15:14:43
Flight Time	05h14m47

Campaign: AMPEP

Operating Area: SW coast to Teesside

POB	Position	Name	Institute
1	Captain	Alan Roberts	Directflight
2	Co-pilot	Alan Foster	Directflight
3	CCM	Sue Angold	Directflight
4	Mission Scientist	Eiko Nemitz	CEH
5	Flight Manager	Stephen Devereau	FAAM
6	Core Chemistry / CCM2	Doug Anderson	FAAM
7	Cloud Physics	Jamie Trembath	FAAM
8	CCN	Stuart Heath	FAAM
9	Filters	Alison Perry	FAAM
10	AMS	Hugh Coe	Manchester University
11	Bag Filler 1	Chiara Di Marco	CEH
12	Bag Filler 2	Steve Ball	FAAM
13			
14			
15			
16			
17			
18			
19			
20			

Flight Track:

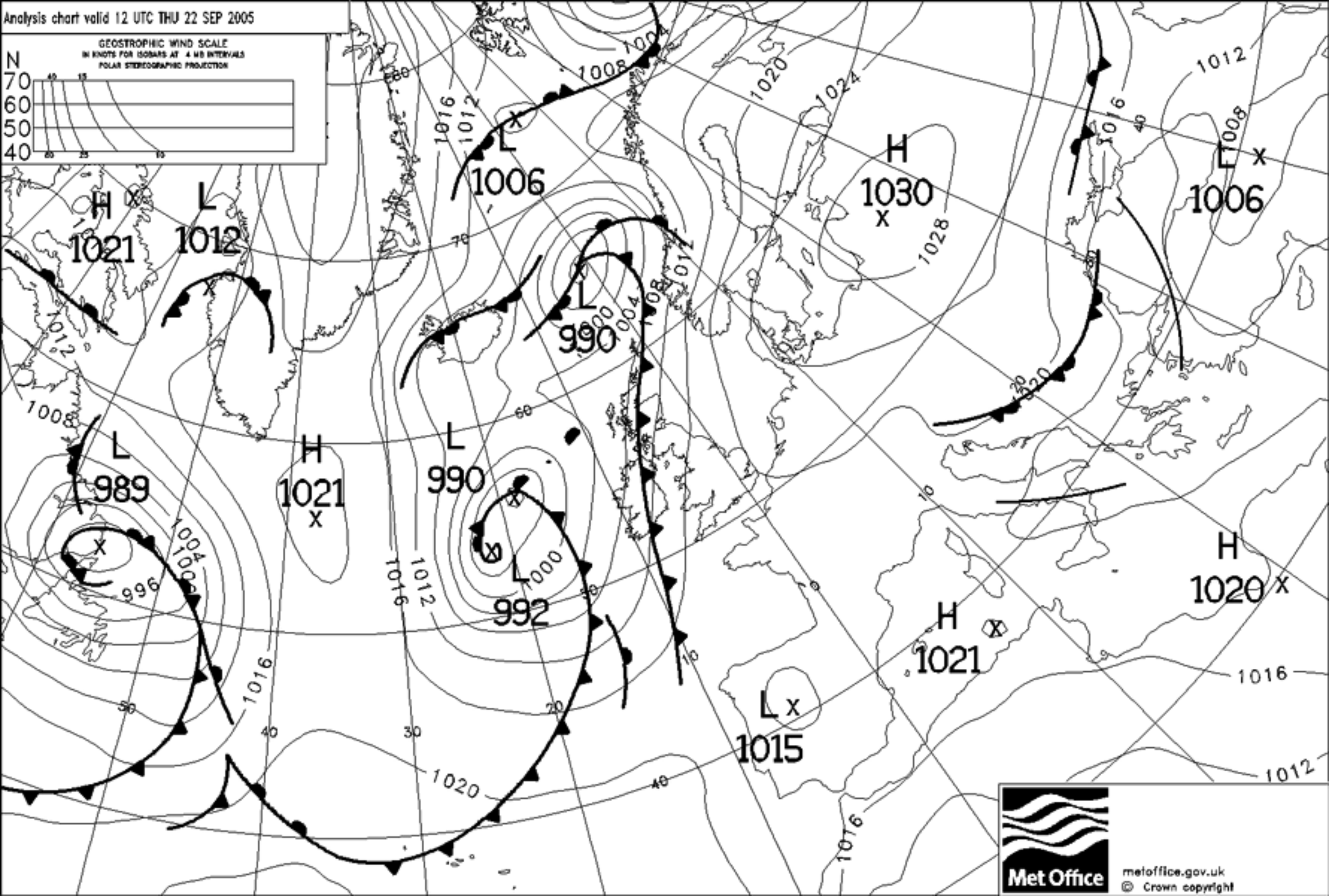


FLIGHT SUMMARY

Flight No B133
Date: 22nd September 2005
Project: AMPEP
Location:

Start Time	End Time	Event	Height (s)	Hdg	Comments
094424		INU to Nav	0.17 kft	125	
095210		start taxy	0.17 kft	125	
095956		T/O	0.82 kft	274	
BBR shutter left extended					
100547		ASP open	9.9 kft	334	
100701		Nevzorov zero	10.0 kft	243	
100718		J/W zero	10.0 kft	241	
103335		start descent	10.0 kft	251	
103939	105307	Run 1	0.50 kft	229	
105210		WP37	0.34 kft	201	
105441		WP48	3.6 kft	136	
105528	110644	Run 2	5.0 kft	140	
110644	111552	Profile 1	5.0 - 0.25 kft	139	
110957		interrupt P1	2.0 kft	138	
110957	111103	Run 3	2.0 kft	139	
111104		recommence P1	2.0 kft	139	
111202		interrupt P1	1.0 kft	139	
111213	111409	Run 4	1.0 kft	137	
111409		recommence P1	1.0 kft	083	
111603	111653	Run 5	0.25 kft	094	
111635		retract BBR	0.25 kft	093	
111700	111728	Profile 2	0.25 - 0.50 kft	089	
111734	113857	Run 6	0.50 kft	086	
112802		WP45	0.50 kft	084	
114013	115331	Run 7	1.5 kft	040	
114301		WP44	1.4 kft	045	
115811	121800	Run 8	1.0 kft	048	
121029		QNH 1020	0.82 kft	071	
121111		WP42	0.82 kft	064	
121800	122230	Profile 3.1	1.0 - 5.0 kft	013	
122230	122704	Profile 3.2	5.0 - 1.0 kft	012	
122416		WP41	3.3 kft	359	
122705	133948	Run 9	1.0 kft	002	
123349		QNH 1021	0.83 kft	003	
123856		WP40	0.82 kft	354	
130553		QNH 1019	0.82 kft	330	
130624		WP80	0.83 kft	323	
131436		QNH 1018	0.86 kft	317	
131900		QNH 1017	0.88 kft	316	
132225		WP79	0.89 kft	340	
133727		QNH 1015	0.92 kft	323	

133958	134130	Profile 4.1	1.0 - 0.25 kft	322	
134130	134637	Profile 4.2	0.25 - 5.4 kft	337	
135021	135524	Run 10	5.0 kft	170	
135826	144956	Run 11	1.0 kft	150	QNH1016
140635		QNH 1017	0.92 kft	164	
141756		QNH 1018	0.91 kft	144	
143317		QNH 1019	0.88 kft	144	
143335		WP80	0.88 kft	154	
143939		QNH 1020	0.86 kft	156	
151443		Land	0.24 kft	241	151443
152231		park posn. 52 04.36 N 0 37.50 W			


Analysis chart valid 12 UTC THU 22 SEP 2005
GEOSTROPHIC WIND SCALE
IN KNOTS FOR ISOBARS AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
H 1021
L 1012
L 1006
H 1030
L 1006
L 990
L 989
H 1021
L 990
L 992
H 1020
H 1021
L 1015
Met Office
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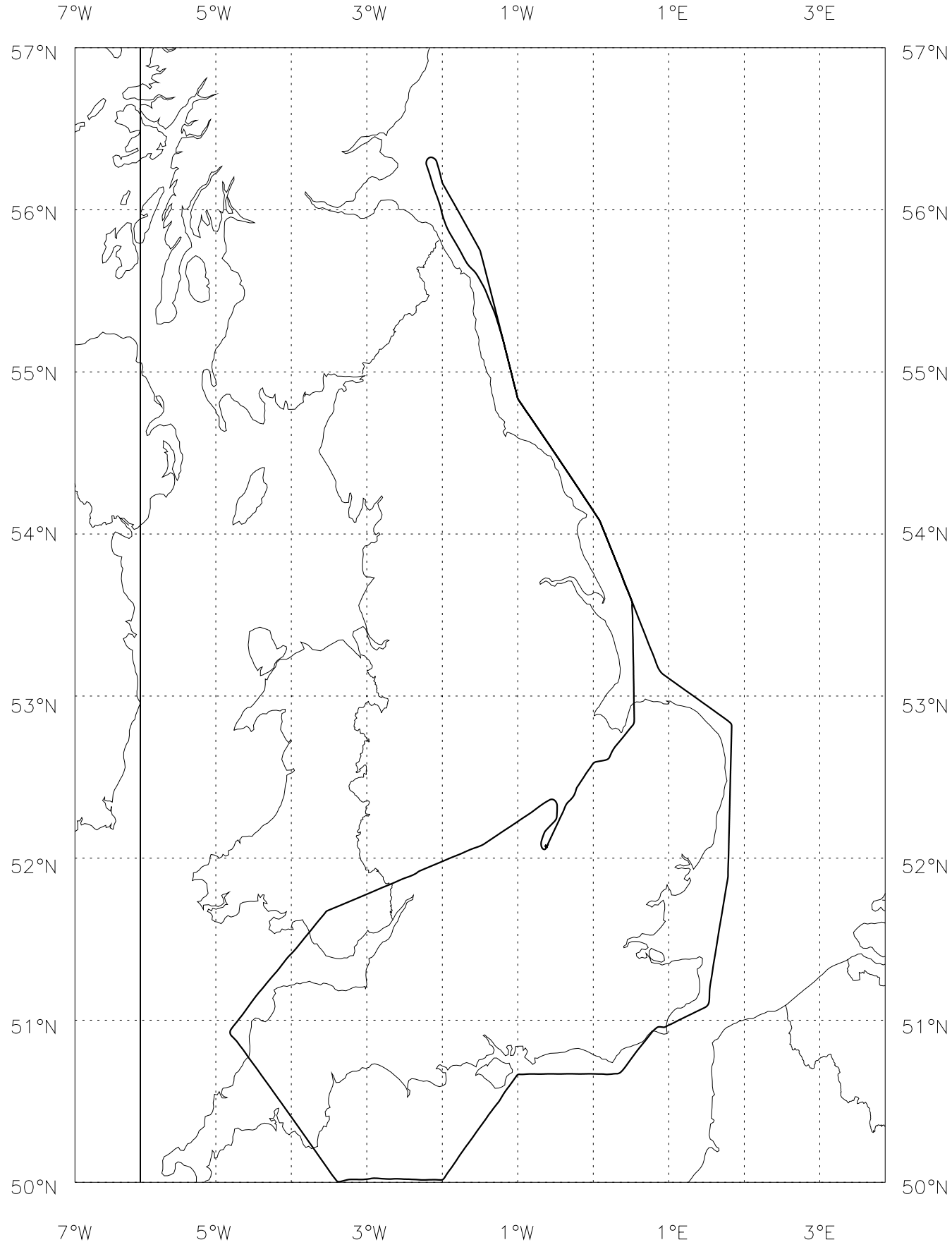
B133 Track 22-SEP-05



Sortie Brief: AMPEP

Flight Number : B133

Mission Scientist: Eiko Nemitz, CEH

Date : 22-September-2005

Outline schedule:
07:00 – Power to aircraft – warm-up
09:00 – Briefing
10:15 – Clear aircraft and security check
10:30 – Doors close
11:00 – Take off Cranfield
16:00 – Land Cranfield
16:30 – Debrief
18:00 – Power down

Location: A coastal transect of the South and East Coast of England

Sortie Aims: To measure the UK pollutant budget of a range of gases and aerosols leaving the UK in gentle SSW airflow over the UK. The objective, in addition to measuring the export fluxes of pollutants is to derive the chemical processing (gas/aerosol partitioning & oxidation state) of the air mass.

Sortie Summary: The budget measurements will be obtained by flying off the South and East coasts along a coastal transect beginning in the Bristol Channel to sample background air off the coast of Cornwall. The transect of the UK outflow begins along the English Channel heading East to Dover then North to the point where airflow off the land stops, which according to current forecasts is North Yorkshire. Vertical profiles (250 – 6000 ft) once upwind in the Bristol channel and downwind of the source region off the Northumberland coast on the Southbound leg will provide the vertical structure in concentration and meteorology. These should clearly extend into the free troposphere (Mission Scientist to verify from profiles of humidity, temperature and CO. These measurements will establish the upwind concentration, the concentration differential at the top of the boundary layer and the concentration in the outflow from the source region. Flight ceiling will be 10000ft. Cabin pressure will be maintained at 1200ft, to minimize expansion of the Tedlar bags.

Sortie Detail with approx timing

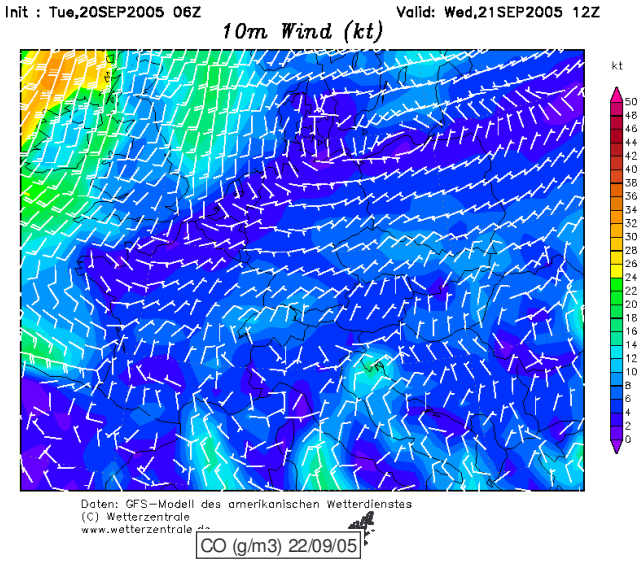
a) Take off Cranfield 11:00 and climb to 10000 ft for transit east to operating area, towards waypoint 37 in the Bristol Channel; background filter run (sampling) & NOxy calibration. Descend to 1000 ft as soon as possible into Bristol Channel, initiated over land.
b) T+35: Cross Devon/Cornwall at 5000 ft.
c) T+45: Descending upwind profile down to define the boundary layer structure off the coast with 1 min sampling at each height (2000, 500, 250)
d) T+60: Return to 1000 ft for sampling..
   Start of filter run No 1. Start of continuous bag sampling (1 bag every min) continue all the way up the east coast. 30-minute filter pack runs from here (called by Mission Scientist)

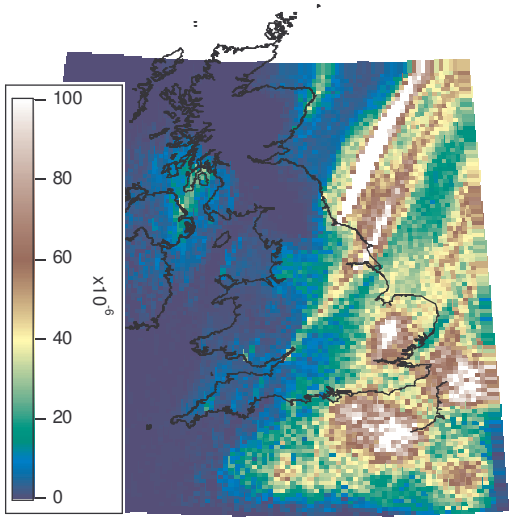
e) T+ 200 U-turn off the Northumberland coast into wind, ascending downwind profile (250, 500, 2000, 4000, 6000).
f) T+ 300 Land Cranfield

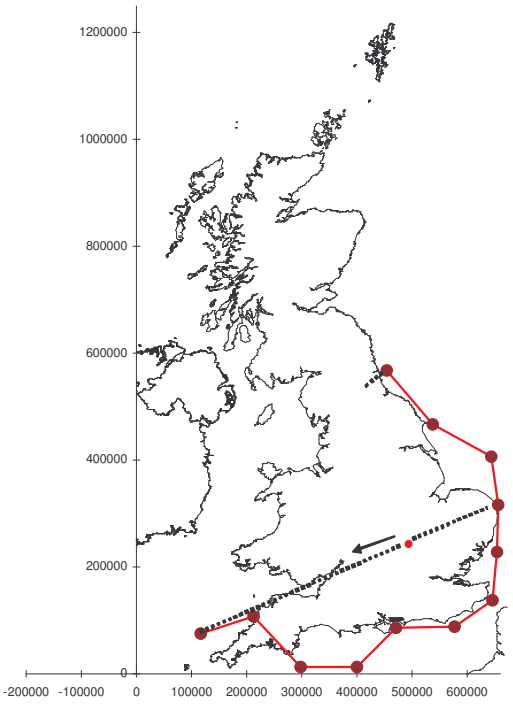
Crew List:

1. Pilot 1 - Alan Roberts
2. Pilot 2 –?
3. CCM – ?
4. CCM2/Core Chemistry – Doug Anderson
5. Cloud Physics – Jamie Trembath
6. Flight Manager – Steve Devereau
7. Mission Scientist – Eiko Nemitz
8. Bag Sampling 1 – Chiara di Marco
9. Bag Sampling 2 – Alison Perry
10. Filters/CCN – Stuart Heath
11. AMS – Hugh Coe
12. ptrms – Anne Hulse
13. WAS – Jim Hopkins ?

- Transit to Bristol Channel
- descend to point 37 50:55N 4:50W
- 48 50:50N 4:40W
- 46 50:01N 3:25W
- 45 50:01N 2:00W
- 44 50:40N 1:00W
- 43 50:40N 0:30E
- 42 51:05N !:30E
- 41 51:53N 1:47E
- 40 52:41N 1:47E
- 87 53:00N 1:00E
- 80 54:05N 0:05E
- 79 50:00N 1:10W
- 77 55:45N 1:30W
- 79 50:00N 1:10W
- 80 54:05N 0:05E
- 87 53:00N 1:00E
- Cranfield







Forecast of CO concentration based on Unified Model meteorology from 20/09/05.

Instrumentation strategies & issues:

Filter sampling: Filters will be taken throughout the flight. Filter pack 1 will contain a Teflon filter for trace metal analysis. Filter pack 2 will contain a Teflon prefilter (for major ion analysis), a nylon filter (for HNO_3 & HCl) and an acidified paper filter (for NH_3). Filters will be changed approximately every 30 minutes or when flight conditions change (as advised by the Mission Scientist). Filters are preloaded into cartridges, which need to be handled with gloves and stored in sealed bags immediately. Filter sampling will be suspended during vertical profiles and resumed when FL10 is re-attained. During breaks, filter packs will be isolated by switching off the pump (to minimise evaporation of volatile aerosol components). During initial transfer to the operating area, a set of filters should be loaded into the filter packs, without sampling, to provide a blank value.

AMS: The AMS will be operated continuously during the flight. Monitored masses will include m/z 16, 18, 28, 30, 43, 44, 46, 57 and 64. The inlet remains closed until airborne to minimize contamination during taxi take-off.

Core Chemistry: CO, SO_2, NO and NO_2 will be measured continuously during the flight. CO will be calibrated every 30 minutes at 1000ft.

Tedlar bags: Tedlar bags will be filled at a flow rate of 6 lpm, filling a bag over a duration of 30 s. Bags will be filled every 3 minutes upwind and every minute downwind of the source region and during each leveling out for a profile step. Bags should be filled to about 90% of their capacity to maximise sample volume. The cabin pressure will be tightly controlled. Bags from first part of flight can be stored in cargo hold for second part.

Aerosol & cloud physics: CN and PCASP are operated continuously.

Core meteorology & state: Are recorded as standard. Video recording of front facing and downfacing cameras.

TDL for CH_4 and CO_2: N/A

Quick-look data: pressure height, lat, long, temp, RH, CN, SO_2, NO, NO_2, O_3, CO**,** NOxy(HNO3)

Mission Scientist's Log

Flight No **B**133 Date 22/09/2005 Page 1 of 4

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
10:00	T/O	broken cloud & base 2000 - 3500 ft + high level cirrus			
10:15		FL100		52.09/1.46	heading for somewhat denser cloud towards SW
		~~band of broken cloud following extension of Bristol Channel~~			
		NOx appears to be working			
		* clear profiles of CO_2 & NO_2 indicating well mixed & capped BL up to 1000 m			
10:23		more cloud except for along rivers & Bristol Channel.			
10:24		late start of Filks Peak transit run due to misinterpretation of F8 runs; continue run through Bristol Channel			
10:32		leaving FL100, initially for 4000 ft. through to 500			
10:39	R1	@ 500 ft; only downward facing camera recording			
10:42		wind 3 m/s @ 190° or 13 kts @ 163°			
		Bristol channel: hazy but no cloud, horizon			
		poorly defined. ~3 ppb of NOx			
10:45		changing to forward facing recording			
10:49		wind 5 m/s @ 176° or 16 knots @ 170°			
10:52		WP 37			
10:53	R1	end of run; end of transit Filks run			
10:54		2500 - 3000 ft ~~base~~ cloud over land			
10:55	R2	FL50			
11:02		cloud cover extends over English Channel but			
		clouds become less convective			
		wind at 500ft 7 m/s @ 193 or 17 @ 205			

Mission Scientist's Log

Flight No **B**...133..... Date ...22/09/2005.....

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
11:06	P1	5000 ft			interrupted → 250 ft
11:10	R3	2000 ft		1 min	
11:12	R4	1000 ft			
		thin level cloud			foggy @ 1000 ft
11:15	R5	250 ft			more NOx near ground, CO_2 less clear
11:22		wind 4 m/s @ 176°			10 knots @ 184°
11:24		visibility improving somewhat, Rottnest just visible			
11:27		wind @ WP 45			1 m/s any direction
11:33		visibility down again, wind 3 m/s @ 180°			
11:19		FF run 4 start			
11:39	R5	end at		500 ft	; forced to climb by low cloud
11:40	R6	@ 1500 ft			; CO drops & PCASP & ATRS NO_3^-
11:43		WP44			↳ end of filter run 1
11:44		wind 3 m/s @ 263°			
11:50		all cores rising white strike at 1500 ft			
11:53	FF2	start of run			
11:53	R7	end of run (19 ons before WP43) @ 1500			
		buying out visibility at 1000 (poor) & 500 (poor)			
		returning to 1000			
11:58	R8	@ 1000 ft			winds 4 m/s @ 203°
12:04		wind 5 m/s 198°			flying over land
12:07		back over sea, still hazy			
12:10		wind 3 m/s @ 189°			ATRS NO_3^- > 10 μg m^{-3}
12:11		WP42			
12:18	R8	end, start of profile P2 1000 → 5000 ft			

Mission Scientist's Log

Flight No **B**...133..... Date ...22/09/2005 Page 3 of 4

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
12:24		clear	inversion horizon		
12:24		WP 41			
	P3	profile down	small	inversion @ 1300 ft	
12:27	R9				
12:32		wind 7 m/s @ 158°		or 8 kts @ 188°	
12:36		wind fluctuating		7 m/s @ 157° or 10 kts @ 189°	
12:43	FP3	start	past FT40	(should start seeing outflow)	
		visibility improving slightly; PCASP falling			
12:48		WP 87			
12:52		picking up outflow; wind 6 m/s @ 169°; 17kts @ 214°			
12:59		wind 9 m/s @ 180°		or 20 kts @ 193°	
13:06		WP 80			
13:07		wind 9 m/s @ 182°		visibility improving PCASP falling	
13:12		narrow CO plume			
13:14		horizon clearly visible			
13:20		clear outflow plume; high O_3 and NO_x/SO_2 ratios			
		low CO!			
13:29		wind 10 m/s @ 182°		or 22kt @ 192°	
13:32		narrow plume			
13:35		end of FP3 run			
13:36		WP 79			
13:39		end of run 9			
		continuous profile		to 5300, falling to 5000 to stay	
		clear of cloud.			
13:48	R10	@ 5000 ft		in precipitation	

Mission Scientist's Log

Flight No **B**...133..... Date ...22/09/2005..... Page ...4... of ...4...

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
13:55		end of R10 descend to 1000 ft.			
13:58	R11	@ 1000 ft			
13:59		WP 77		12 m s^{-1} @ 199°	
13:59		FF Run 4 start			
14:06		narrow plume as before, no smoke to be seen			
		(but coastline only just visible!) (no ships!)			
14:13		12 m/s @ 198° &		22 kts @ 193°	
14:16		WP 79			
14:27		about to re-enter hazy area with high SO_2 and			
		elevated NO_2.			
14:29		end FF Run 4 at S end of plumes and start of			
		leg.			
14:33		WP 80		8 m/s @ 199° &	22 kts @ 188°
14:33	FF 5	Run start			
14:49	R11	end, climb to FL100			3 m/s @ 222°
		end of FF Run 5.			
	hazy over land with cloud top 3000 ft.				
	no liquid water content detected in haze over sea				

CORE CHEMISTRY FLIGHT LOG FOR FLIGHT FOLDER

Flight Number : B133
Date : 22 Sept 2005
Operator & contact info : Doug Anderson (dougan@faam.ac.uk)

Problems with Instruments

CO	None
O_3	None
NO_x	None
SO_2	None
TDLAS	Not fitted
WAS	Not flown

CO Calibrations

A full calibration lasts approx three minutes, it consists of a cal and a zero
Shorter (quick cals) are sometimes done at low level which is calibration only

Time (GMT)	Level	Comments
10:13:25	FL100	
10:42:48	500’	
10:58:24	FL050	
11:21:19	500’	
11:44:09	1500’	
12:01:40	1000’	
12:31:00	1000’	
13:37:17	1000’	
13:50:03	FL050	
14:01:39	1000’	
14:57:11	FL100	

CLOUD PHYSICS LOG

Flight No. B133 **Date: 22/09/05** **Operator:JT** **Page1 of 5**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
				Not requested	Not requested			Not requested			SID not requested
											2D imaging probes not requested
											DAU 1 17 seconds slow
10:39:39	1570	0.09	8								Start run 1 500ft
10:41:00	13231	0.09	8								
10:43:00	1440	0.09	8								
10:45:00	1529	0.09	8								
10:47:00	1787	0.09	8								
10:49:00	1623	0.09	8								
10:51:00	1697	0.09	8								
10:53:07	1776	0.09	8								End of run 1 – run 2 missed
11:06:43	71	0.09	8								Start of P1 descent 5000ft
11:07:52	571	0.09	8								4000ft
11:08:49	1982	0.1	8								3000ft
11:09:57	1827	0.09	8								2000ft interupt P1 start run 3
11:10:58	1544	0.09	8								End of run 2 restart P1 2000ft
11:12:01	1826	0.09	8								1000ft interupt P1 start run 4
11:14:09	1904	0.09	8								End run 4 restart P1 1000ft
11:15:52	2269	0.09	8								End P1 250ft start run 5
11:16:52	2136	0.09	8								End of run 5 Start P2 250ft
11:17:28	1541	0.09	8								End P2 start run 6 500ft
11:19:00	1718	0.09	8								
11:21:00	2741	0.09	8								
11:23:00	2780	0.09	8								
11:25:00	1905	0.09	8								
11:27:00	2982	0.09	8								
11:29:00	4046	0.09	8								
11:31:00	4611	0.09	8								
11:33:00	3761	0.09	8								
11:35:00	3628	0.09	8								
11:37:00	3079	0.09	8								
11:38:55	2879	0.09	8								End of run 6

CLOUD PHYSICS LOG

Flight No. B **Date:** **Operator:** **Page 2 of 5**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
11:40:13	1114	0.08	8								Start of run 7 1500ft
11:42:00	1198	0.09	8								
11:44:00	1275	0.09	8								
11:46:00	929	0.09	8								
11:48:00	750	0.09	8								
11:50:00	2644	0.09	8								
11:52:00	2929	0.09	8								
11:53:31	2162	0.09	8								End of run 7
11:58:11	2390	0.09	8								Start run 8 1000ft
12:00:00	2691	0.09	8								
12:02:00	3446	0.08	8								
12:04:00	2910	0.09	8								
12:06:00	3388	0.09	8								
12:08:00	4039	0.09	8								
12:10:00	3045	0.09	8								
12:12:00	2969	0.08	8								
12:14:00	6000	0.09	8								
12:16:00	5605	0.09	8								
12:18:01	4627	0.1	8								Start P3.1 1000ft end run 8
12:19:16	3302	0.09	8								2000ft
12:20:17	1949	0.09	8								3000ft
12:21:19	24	0.09	8								4000ft
12:22:30	7.79	0.06	8								5000ft end P3.1 start P3.2
12:23:28	101	0.06	8								4000ft
12:24:31	3193	0.09	8								3000ft
12:25:45	4369	0.1	8								2000ft
12:27:04	5099	0.09	8								1000ft end P3.2 Start run 9
12:29:00	5103	0.09	8								
12:31:00	4949	0.1	8								
12:33:00	4642	0.1	8								
12:35:00	4579	0.1	8								
12:37:00	4992	0.1	8								

CLOUD PHYSICS LOG

Flight No. B133 **Date:23/09/05** **Operator:JT** **Page 3 of 5**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
12:39:00	4758	0.1	8								
12:41:00	4134	0.1	8								
12:43:00	3716	0.09	8								
12:45:00	3067	0.09	8								
12:47:00	2564	0.09	8								
12:49:00	3629	0.09	8								
12:51:00	3185	0.09	8								
12:53:00	3384	0.09	8								
12:55:00	3826	0.09	8								
12:57:00	4650	0.09	8								
12:59:00	3737	0.09	8								
13:01:00	3415	0.1	8								
13:03:00	2986	0.09	8								
13:05:00	2189	0.09	8								
13:07:00	1203	0.09	8								
13:09:00	1048	0.08	8								
13:11:00	890	0.08	8								
13:13:00	785	0.09	8								
13:15:00	572	0.09	8								
13:17:00	691	0.09	8								
13:19:00	381	0.08	8								
13:21:00	516	0.08	8								
13:23:00	897	0.08	8								
13:25:00	925	0.08	8								
13:27:00	1025	0.09	8								
13:29:00	905	0.08	8								
13:31:00	619	0.08	8								
13:33:00	588	0.08	8								
13:35:00	719	0.08	8								
13:37:00	811	0.08	8								
13:39:00	683	0.08	8								
13:39:45	564	0.09	8								END RUN 9

CLOUD PHYSICS LOG

Flight No. B **Date:** **Operator:** **Page 4 of 5**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
13;39:48	649	0.08	8								Start P4.1 1000ft to 250ft
13:41:30	686	0.09	8								500 end P4.1 start P4.2
13:42:36	583	0.09	8								1000
13:43:16	467	0.09	8								2000
13:44:11	507	0.1	8								3000
13:45:07	69	0.21	8								4000
13:46:07	2.98	0.06	8								5000
13:46:30	15.5	0.06	8								5400ft end P4.2
13:47:00											5000ft run 10
13:53:00	135	0.08	8								
13:55:28	151	0.08	8								End run 10
13:58:26	962	0.08	8								Start run 11 1000ft
14:00:00	658	0.08	8								
14:02:00	688	0.08	8								
14:04:00	842	0.08	8								
14:06:00	783	0.08	8								
14:08:00	796	0.08	8								
14:10:00	658	0.09	8								
14:12:00	603	0.08	8								
14:14:00	1041	0.08	8								
14:16:00	700	0.09	8								
14:18:00	562	0.09	8								
14:20:00	484	0.08	8								
14:22:00	602	0.09	8								
14:24:00	581	0.09	8								
14:28:00	697	0.09	8								
14:30:00	1766	0.09	8								
14:32:00	2933	0.09	8								
14:34:00	3164	0.1	8								
14:36:00	3318	0.1	8								
14:38:00	3585	0.1	8								
14:40:00	4071	0.1	8								

CLOUD PHYSICS LOG

Flight No. B **Date:** **Operator:** **Page 5 of 5**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
14:42:00	3960	0.1	8								
14:44:00	4166	0.1	8								
14:46:00	4235	0.1	8								
14:48:00	4559	0.1	8								
14:49:57	4491	0.1	8								End of run 11

Filter Sampling Log

Flight No: B133 **Date:** 22nd Sept 2005 **Operator:** AP

Type of filters mounted in	Top inlet	TEFLON/NYLON/PAPER	Bottom inlet	TEFLON / PAPER

Run No	Disk No 1	Disk No 2	Disk No 3	Top/ Bottom	Time On	Time Off	Flight Run	Accum Vol [l]	Comments
	TOP	MIDDLE	BOTTOM						
Transit	50	51	161	Top	10.24Z	10.53Z		450	
Transit	116	183	154	Bottom	10.24Z	10.53Z		907	
Filters run1	126	111	5	Top	11.19Z	11.42Z		434	
Filters run1	159	142	92	Bottom	11.19Z	11.42Z		977	159 FILTER PAPER LOOSE
2	141	85	18	Top	11.53Z	12.17Z		412	
2	123	89	56	Bottom	11.53Z	12.17Z		1067	123 FILTER PAPER LOOSE
3	158	131	23	Top	12.43Z	13.36Z		966	
3	121	113	155	Bottom	12.43Z	13.36Z		1947	
4	98	114	10	Top	13.59Z	14.29Z		548	
4	143	87	93	Bottom	13.59Z	14.29Z		1016	
5	152	86	13	Top	14.33Z	14.50Z		324	
5	134	124	135	Bottom	14.33Z	14.50Z		639	134 FILTER PAPER LOOSE
6 Transit	133	89	58	Top	14.55Z	15.05Z			
6 Transit	140	101	145	Bottom	14.55Z	15.05Z			
				Top					
				Bottom					
				Top					
				Bottom					
				Top					
				Bottom					
				Top					
				Bottom					

FLIGHT NUMBER: B133	DATE: 22/09/05	OPERATOR: SWH	Page 1 of 23
PROJECT: AMPEP			

CCN LOG

ALLEVIATOR GMT		HEIGHT	TEMP INLET			STATIC				REMARKS
ON	OFF			1	2	3	4	5		
101125	101155	100 FL	20.95	1.75	2.5	3.5	4.25	5.5		
			21.02	0.50	0.75	1.13	1.45	2.12	S	Background.
			21.04	286	432	465	466	809	D	
			21.12	275	269	271	277	286	B	
			20.99	2321	2316	2345	2386	2416	R	
				965.5	965.2	965.3	965.3	965.3	P	
103000	103036	100FL	21.39	0.50	0.74	1.11			S	Deranded
			21.31	277	374	511			D	
			21.29	289	289	287			B	
				2417	2397	2387			R	
				965.5	965.5	965.7			P	
				1.75	2.5	3.5	4.25	5.5		
104006	104039	500ft	21.38	0.50	0.74	1.10	1.44	2.09	S	
			2140	812	1366	1770	2466	2694	D	
			21.64	354	348	343	343	377	B	
			21.61	2317	2315	2307	2305	2301	R	
			21.22	1006.2	1006	1006.1	1006.3	1006.2	P	
104740	104810	500ft	21.41	0.50	0.73	1.11	1.45	2.11	S	
			21.39	965.	1390	2323	2916	2071	D	
			21.85	353	349	349	354	388	B	
			21.79	2305	2302	2298	2302	2305	R	
			21.72	1006.2	1006.2	1006.0	1006.5	1006.9	P	
				1.75	2.5	3.5	4.25	5.5		
111237	111308	1000ft	21.	0.50	0.72	1.13			S	
				2006	2246				D	Desert
				369	361				B	
				2325	2332				R	
				1002.1	1006.3	100			P	
11825	111850	500ft	21.79	0.49	0.73	1.09	1.42	1.09	S	
			22.40	2502	3176	3767	4034	4092	D	
			22.10	306	312	375	365	367	B	
			22.31	2371	2418	2428	2431	2435	R	
			22.15	1006.5	1006.6	1006.4	1006.4	1006.5	P	
				1.75	2.5	3.5	4.25	5.5		
112548	112618	500ft	21.87	0.49	0.73	1.09	1.42	2.10	S	
			22.32	3204	3041	3495	3952	4001	D	
		21.83	22.38	407	423	423	421	425	B	
			22.35	2447	2443	2444	2444	2439	R	
			22.31	1008.2	1007.9	1007.2	1007.1	1007.7	P	
113305	113340	500ft	22.14	0.50	0.73	1.09	1.44	2.09	S	
			22.52	2195	3012	3571	3994	4024	D	
			22.49	375	376	374	371	375	B	
			22.41	2438	2432	2428	2422	2420	R	
				1007.6	1007.4	1007.1	1007.2	1007.1	P	

FLIGHT NUMBER: B133	DATE: 22/09/05	OPERATOR: SWH.	Page 2 of 23
PROJECT: AMPEP			

CCN LOG

ALLEVIATOR GMT		HEIGHT	TEMP INLET			STATIC				REMARKS
ON	OFF			1	2	3	4	5		
114558	114628	1500ft		1.75	2.5	3.5	4.25	5.5		
			22.59	0.51	0.14	1.09	1.42	2.09	S	
			22.58	2560	2579	3426	3795	4092	D	
			22.44	335	340	346	349	355	B	
			22.40	2412	2436	2444	2448	2452	R	
			22.25	1006.4	1006.3	1006.3	1006.2	1006.1	P	
115825	115859	1000ft	22.86	0.48	0.74	1.09	1.42	2.06	S	
			22.81	2917	3298	3819	4002	4092	D	
			22.70	376	381	376	380	382	B	
			2227	2448	2451	2442	2432	2436	R	
			22.37	1006.3	1006.3	1006.4	1006.4	1006.3	P	
				1.75	2.5	3.5	4.25	5.5		
120615	120645	1000ft	22.15	0.49	0.72	1.09	1.41	2.11	S	
			22.11	3812	3909	4092	4092	4092	D	
			22.23	494	461	467	470	471	B	
			22.18	2424	2418	2407	2405	2409	R	
			22.21	1006.4	1006.3	1006.3	1006.9	1006.9	P	
123025	123101	1000ft	22.37	0.49	0.76	1.12	1.42	2.09	S	
			22.26	4092	4092	4092	4092	4092	D	
			22.31	647	641	635	639	641	B	
			22.35	2343	2353	2379	2426	2440	R	
				1006.9	1006.8	1007.0	1007.1	1007.1	P	
				1.75	2.5	3.5	4.25	5.5		
125030	125102	1000ft	22.29	0.49	0.75	1.09	1.44	2.05	S	
			22.23	3968	4092	4092	4092	4092	D	
			22.69	482	468	471	478	482	B	
			22.64	2408	2391	2389	2380	2372	R	
			22.61	1007.6	1007.6	1007.7	1007.7	1007.7	P	
130535	130602	1000ft	21.69	0.49	0.74	1.10	1.46	2.11	S	
			22.05	2959	2998	3865	4092	4092	D	
			22.09	505	520	521	525	522	B	
			22.11	2781	2778	2772	2771	22	R	
			22.09	1006.6	1006.7	1006.7	1006.6	1006.7	P	
				1.75	2.5	3.5	4.25	5.5		
131126	131147	1000ft	21.79	0.50	0.77	1.10	1.44	2.11	S	
			21.78	3842	3854	3965	4092	4092	D	
			21.82	443	451	455	460	452	B	
			21.88	2296	2308	2340	2379	2396	R	
			21.89	1006.7	1006.1	1006.4	1006.2	1006.2	P	
131930	131902	1000ft	21.99	0.48	0.74	1.12	1.43	2.07	S	
			22.23	2791	2388	3901	4092	4092	D	
			22.40	421	429	431	429	434	B	
			22.43	2401	2399	2394	2390	2386	R	
			22.45	1004.8	1004.7	1004.7	1004.6	1004.6	P	

FLIGHT NUMBER: B133	DATE: 22/09/05	OPERATOR: SWM	Page 3 of 23
PROJECT: AMPEP.			

CCN LOG

ALLEVIATOR GMT ON	OFF	HEIGHT	TEMP INLET	1	2	STATIC 3	4	5		REMARKS
135845	135910	1000ft		1.75	2.5	3.5	4.25	5.5		
			22.73	0.48	0.73	1.08	1.40	2.04	S	
			23.03	1376	1522	2145	2223	4092	D	
			23.17	334	341	348	340	342	B	
			23.07	2336	2329	2324	2318	2312	R	
			23.11	1002.5	1003.5	1003.4	1003.4	1003.4	P	
140600	140631	1000ft	22.76	0.50	0.72	1.10	1.42	2.07	S	
			22.77	1463	2212	2295	2760	4046	D	
			23.02	334	332	331	328	325	B	
			22.94	2308	2301	2297	2292	2288	R	
			22.91	1004.1	1004.2	1004.1	1004.1	1004.2	P	
				1.75	2.5	3.5	4.25	5.5		
141720	141749	1000ft	23.21	0.49	0.73	1.09	1.41	2.06	S	
			23.18	1653	1686	2350	4092	4091	D	
			23.19	320	324	328	330	480	B	
			23.18	2283	2279	2277	2276	22	R	
			23.16	1005.3	1005.3	1005.3	1005.5	1005.3	P	
142700	142732	1000ft	23.07	0.49	0.72	1.08	1.42	2.03	S	
			22.99	2102	1901	2488	2905	4092	D	
			23.07	329	332	335	340	342	B	
			23.05	2291	2295	2298	2302	2307	R	
			23.10	1005.4	1005.5	1005.4	1005.5	1005.4	P	
				1.75	2.5	3.5	4.25	5.5		
143520	143552	1000ft	23.27	0.50	0.71	1.08	1.39	2.04	S	
			23.36	2093	2738	3295	4092	4092	D	
			23.38	509	517	520	519	525	B	
			23.48	2335	2332	2344	2340	2358	R	
			23.45	1006.2	1006.0	1006.1	1006.5	1006.6	P	
144300	144331	1000ft	23.27	0.49	0.73	1.07	1.42		S	end run
			23.40	2371	3275	3891	4092		D	and climbed.
			23.48	582	587	590	589		B	
			23.59	2396	2364	2367	2377		R	
				1006.6	1006.6	1006.7	1006.7		P	
				1.75	2.5	3.5	4.25	5.5		
									S	
									D	
									B	
									R	
									P	
									S	
									D	
									B	
									R	
									P	

Flight No. B133 Route

Date 22/09/05 Take Off 11:00

Bag Samplers: CHIARA, STEVE

Sheet No. 1

Bag Number	Time on (GMT)	Time off (GMT)	Lat	Lon	Comments
304	10:13:45	+30"			
170	:14:45	+30			
192	17:45	+30	520215N	01 43 26W	
251	20:45	+30			
143	23:45	+30	51 53.85	02 23.33W	
486	26:45	+30			
163	29:45	+30	51 45.86	03 04.78W	
168	32:45	+30			
463	35:45	+30	51 34.7	0392.0PW	
073	38:45	+30			
190	41:45	+30	5120.80	04 07.48W	
022	44:45	+30	511400N	419.56W	
258	47:45	+30	51067ON	043186W	
321	50:45	+30	510592N	0443.63W	END RWN 1 @ 105307 500ft
213	53:45	+30			
217	56:45	+30	5044.11	04304.3W	RWN 2 @ 05528 1250
345	59:45	+30			
361	11:02:45	+30	502766	04049W	
147	11:05:45	+30			
334	11:06 45	+30			@ 110644 PGHW1
188	07:45	+30	5013.73N	343.90W	
196	08:45	+30			
331	09:45	+30	50 0831	3 31.85	
400	10:45	+30			
384	11:45	+30			@ 111202 RWN 4
097	12:45	+30			
283	13:45	+30	50 0036N	3 19.55W	
171	14:45	+30			
515	15:45	+30			@ 115552 RS
427	16:45	+30			
521	17:45	+30			@ 111728 RG
530	18:45	+30	50 01.50	252.36	
194	19:45	+30			
279	20:45	+30			
119	21:45	+30			
556	22:45	+30	50 01.15	2 24.05	
358	23:45	+30			
448	24:45	+30			
239	25:45	+30	50 00.88	02121W	
160	26:45	+30			
434	27:45	+30			

Flight No.	B133	Route	
Date	22 SEP 05	Take Off	1000 Z
Bag Samplers:	CHIARA STENT		
Sheet No.	2		

Bag Number	Time on (GMT)	Time off (GMT)	Lat	Lon	Comments
110	11:28:45	+30"			
507	29:45	+30			
364	30:45	+30			
187	31:45	+30	5010.41N	0145.26W	
008	32:45	+30			
126	33:45	+30			
343	34:45	+30			
091	35:45	+30	5020.8[illegible]	0129.40W	
607	36:45	+30			
394	37:45	+30			
233	38:45	+30			
009	39:45	+30	50304[illegible]	11400W	1500/B114013 R7
063	40:45	+30			
101	41:45	+30			
496	42:45	+30			PT44
285	43:45	+30	5039.93	056.18W	
374	44:45	+30			
379	45:45	+30			
282	46:45	+30			
013	47:45	+30	504015	0340PW	
261	48:45	+30			
658	49:45	+30			
382	50:45	+30			
162	51:45	+30			
650	52:45	+30			
338	53:45	+30	5040.10	003.26	
078	54:45	+30			
403	55:45	+30			
048	56:45	+30			vPT43
132	57:45	+30			1000' R8 (T) 115811
473	58:45	+30	5044.7P	02P.28 (E)	
335	59:45	+30			
435	12:00:45	+30			
230	01:45	+30			
611	02:45	+30	~~505~~		
329	03:45	+30	5056.5[illegible]N	050.10E	
177	04:45	+30			
088	05:45	+30			
327	06:45	+30			
388	07:45	+30	5100.41N	0112.45E	
489	08:45	+30			

Flight No. B133 Route

Date 22 SEP 05 Take Off 1000Z

Bag Samplers: CHIARA STEVE

Sheet No. 3

Bag Number	Time on (GMT)	Time off (GMT)	Lat	Lon	Comments
339	12:09:45	+30			
470	10:45	+30			PT 42
140	11:45	+30			
349	12:45	+30	5110.28N	0132.35E	
082	13:45	+30			
087	14:45	+30			
452	15:45	+30			
164	16:41	+30	5124.46N	0137.13E	
086	17:45	+30			
265	18:45	+30			
040	19:45	+30			
053	20:45	+30	5140.41N	0142.65E	
066	21:45	+30			
532	22:45	+30			
464	23:45	+30			
387	24:45	+30			
478	25:45	+30			
328	26:45	+30	5205.10N	0107.65E	1000' R9 (T) 12.27.05
025	27:45	+30			
030	28:45	+30			
651	25:41	+30			
454	30:45	+30	52215DN	1481DE	
189	31:45	+30			
601	32:41	+30			
425	33:45	+30			
488	34:45	+30	5234.9N	0149.2E	
205	35:45	+30			
218	36:45	+30			
014	37:45	+30			
215	38:41	+30	52484	0149 9E	PT 40
332	39:41	+30			
058	40:45	+30			
451	41:41	+30			
060	42:45	+30	5256.3N	0130.1E	
028	43:45	+30			
271	44:41	+30			
381	45:41	+30			
186	46:41	+30	5304.1	0106 8E	
288	47:41	+30			PT 87
392	48:41	+30			
314	49:41	+30			

Flight No.	B133	Route	
Date	22 SEP 05	Take Off	1000Z
Bag Samplers:	CHIARA STEVE		
Sheet No.	4		

Bag Number	Time on (GMT)	Time off (GMT)	Lat	Lon	Comments
220	12:50:45	+30			
249	12 51:41	+30	5315.9	046.8E	
005	12:52:45	+30			
042	12:53:45	+30			
460	1254:45	+30			
522	:55:45	+30	5330.7	0.34.2E	
084	56:45	+30			
322	57:45	+30			
255	58:45	+30			
145	59:45	+30			
011	13:00:00	+30	5307.6	019.7E	
172	02:00	+30			
180	03:00	+30			
499	04:00	+30			
043	05:00	+30			
121	0600	+30	5403.8	001.8E	PT 80
074	07:00	+30			
252	08:00	+30			
047	09:00	+30			
226	10:00	+30			
280	11:00	+30			
029	12:00	+30	54:21.3	018.6W	
091	13:00	+30			
391	14:00	+30			
526	15:00	+30			
354	16:00	+30			
237	17:00	+30	5436.9	041.1W	
625	18:00	+30			
209	19:00	+30			
173	20:00	+30			
089	21:00	+30			PT 79
106	22:00	+30			
442	23:00	+30			
055	24:00	+30			
002	25:00	+30			
152	26:00	+30	5504.6	01 08.0W	
612	27:00	+30			
007	28:00	+30			
243	29:00	+30			
236	30:00	+30	5520.0N	0117.3W	
211	31:00	+30			

Flight No. B133 Route

Date 22 SEP 05 Take Off 1000 Z

Bag Samplers: CHIARA STEVE

Sheet No. 5

Bag Number	Time on (GMT)	Time off (GMT)	Lat	Lon	Comments
411	13:32:00	+30			
484	13:33:00	+30			
487	34:00	+30	5533.6N	01.29.9W	
136	35:00	+30			
017	36:00	+30			ABM PT 771
158	37:00	+30			
057	38:00	+30			
093	39:00	+30	5548.1	0152.3W	
600	40:00	+30			
080	41:00	+30			
026	42:00	+30			
050	43:00	+30			
622	44:00	+30	56.04.9	209.4W	
268	45:00	+30			
399	46:00	+30			
127	47:00	+30			
396	48:00	+30			
503	49:00	+30	5614.4	202.4W	
245	50:00	+30			
402	51:00	+30			
052	52:00	+30			
246	53:00	+30			
206	54:00	+30			
081	55:00	+30			
018	56:00	+30	55 59.7	0141.2W	
083	57:00	+30			
524	58:00	+30			1000' R11 (T) 1358-26
256	59:00	+30			PT 771
123	14:00:00	+30			
311	14 01:00	+30			
185	02:00	+30	5537.6	0121.7W	
485	03:00	+30			
223	04:00	+30			
061	05:00	+30			
505	06:00	+30	5522.7	0117.4W	
393	07:00	+30			
551	08:00	+30			
051	09:00	+30			
510	10:00	+30	5511.8N	01.11.00W	
421	11:00	+30			
056	12:00	+30			

200

Flight No.	B133	Route	
Date	22 SEP05	Take Off	1000Z
Bag Samplers:	CHIARA STEVE		
Sheet No.	6		

Bag Number	Time on (GMT)	Time off (GMT)	Lat	Lon	Comments
128	14:13:00	+30			
385	14:00	+30	5457.1	0103.7W	
290	15:00	+30			
250	16:00	+30			PT 79
178	17:00	+30			
254	18:00	+30			
104	19:00	+30	5443.6	0050.6W	
096	20:00	+30			
064	21:00	+30			
102	22:00	+30			
242	23:00	+30			
100	24:00	+30	5428.7	0028.4W	
031	25:00	+30			
071	26:00	+30			
528	27:00	+30			
424	28:00	+30			
184	29:00	+30			
095	30:00	+30	5414.6N	007.7W	
619	31:00	+30			
458	32:00	+30			
157	33:00	+30			PT 80
035	34:00	+30			
062	35:00	+30	5400.6	0008.9E	
543	36:00	+30			
130	37:00	+30			
617	38:00	+30			
032	39:00	+30			
621	40:00	+30	5345.7	0021.8E	
003	41:00	+30			
012	42:00	+30			
098	43:00	+30			
511	44:00	+30			
133	45:00	+30	5330.5N	031.1E	
115	46:00	+30			
615	47:00	+30			
107	48:00	+30			
618	49:00	+30			
626	50:00	+30	5312.5	0031.8E	END RUN 11 @ 49 56
310	51:00	+30			
610	52:00	+30			
517	53:00	+30			

Flight No. B133 Route

Date 22 SEP05 Take Off 1000Z

Bag Samplers: CHIARA STONE

Sheet No. 7

Bag Number	Time on (GMT)	Time off (GMT)	Lat	Lon	Comments
408	14:55:00	+30			
069	14:57:00	+30			
134	14:59:00	+30			
038	15:01:00	+30	52:363	00 09 6E	
602	15:02:00	+30			ENDAC
					PLEASURE TO BE HERE, SIR

(245)

AMS PreFlght Setup/Cal Sheet v2.00

DATE: 22/9/05 FLIGHT: OPERATOR: H COE.

Time:	Action:	Location:	Yes/No:	Notes	Comments:
Power ON	Ensure Inlet Closed	Inlet Valve	Y		
	Ensure Multiplier Off	Electronics box	Y		
	Ensure Heater Off	Electronics box	Y		
	Ensure all Pumps Off	Pump Control box	Y		
	Turn on 230V Breaker	Power unit on a/c wall	Y		
	Turn on: Electronics box power Diaphragm pump power Turbo pump power CPC Power, both Buttons	Power distribution box	Y		
	Open backing pump valve	Front facing side of rack.	Y		
	Turn on Alcatel…100% speed Turbo pumps 2 and 3 ON…100% Turbo pumps 4 and 5 ON 100% Turbo pump 6 ON…100%	Pump Control Box, after #6 Pump Control Box Pump Control Box Pump Control Box	Y	**Monitor Pump Currents**	@07:20 BST ALL 100% 5 TOOK SLIGHTLY LONGER THAN REST BUT CURRENTS ALL OK.
	Plug in CPC fill bottle	Rear of CPC	Y		
	Turn on heater	Electronics box	Y	Approx 2.8V, 0.9A	0800 BST 2.8V 0.93A 0845 BST
Pre-Brief	Turn on Balzers Box	Power distribution box and Balzers box	Y		08:44 BST
	Turn on Copper	Electronics box	Y	Approx 125Hz	
	Turn on PC/Monitor	Power distribution box and PC	Y		
	Start AMS software	PC Desktop	Y		
	Turn autosaving off	Parameter menu, Averaging and saving tab	Y	NEGATIVE NUMBER	
	Reduce Multiplier voltage by 0.5kV	Parameter menu, Muliplier and chopper tab	Y	now 2,075	
	Set filament to 0.00mA,Scan range 0-300amu	Parameter menu, Mass Spectrometer tab	Y		
	Turn Multiplier on	Electronics box	Y		
	Turn filament on @0.05mA	MS mode, shift+B, click emmision arrow	Y	COMPLETE @	08:50 BST

AMS PreFlght Setup/Cal Sheet v2.00

DATE: 22/9/05 FLIGHT: 133 OPERATOR: H CCE

Time:	Action:	Location:	Yes/No:	Notes	Comments:
Post Brief	Increase Multiplier voltage by 0.5kV	Parameter menu, Muliplier and chopper tab	Y		BACK TO 2.575
	Close Grimm valve	Inlet valve	N/A		
	CPC in low flow	Shift+total on CPC display	Y		OK W/O NEGATIVE
	Check RF box, Tune if needed	Turn Tune Screw on RF Box for best hit	Y		
	Log CPC on AMS serial port 2	Parameter menu, Serial port tab	Y		
	Set mass range scan 0-300	Parameter menu, Mass Spectrometer tab	Y		
	Open AMS inlet	Inlet valve	Y		
	Increase filament to 2.5mA	MS mode, shift+B, click emmision arrow	Y		
	Toggle chopper in MS mode	Press T within MS mode	Y		
	Check Airbeams and flows	Add m28 to m/z selection, Clean pin hole???	Y	F=1.9,AB approx 2.3MHz	F=1.917 AB 34x10⁶
	Tune Balzers	Software	Y	Ensure no major changes	
	Electron Multiplier Cal	Software, select suitable point manually	Y	Gain approx 3e6	CHOSEN
	Get tof masses for IE cal	Software,mz selection,left click on row	Y	15,16,17,30,46*	
	Set thresholds In tof mode	Left click "SP thresholds" in left border	Y	wait	
	Mass Range Cal	MS mode, Click Mass Calibration	Y		
	Add m28 to tof list	Software,mz selection,left click on row	Y		
	Run in MS-TOF alteration	Software	Y	Check tof windows	
	IE cal after 200 particles	Shift+M while sampling,Calibtrate,Save,Exit	Y	SMPS s=4.1,a=0.41,350nm	s=4.1 D350 a=0.7 (NH4NO3 520, NH4 590)
	Remove CPC butanol from aircraft	Rear of CPC	Y		
	CPC in high flow	Shift+total on CPC display	Y		
	Reconnect inlet and GRIMM	Inlet	Y	CONNECTED TO PARTICLE FILTER	
	Set CPC port=0 in AMS software	Parameter menu, Serial port tab	Y	LOG CPC IN LABVIEW	
	Set PC time with Horace	Desktop plus internet explorer	Y		
	Set mass range scan	Parameter menu, Mass Spectrometer tab	Y		
	Select tof masses to scan	Software,mz selection,left click on row	Y	14,16,30,43,44,46,48,57	
	Set thresholds In tof mode	Left click "SP thresholds" in left border	Y		
	Add m28 to tof list	Software,mz selection,left click on row	Y		
	Set DC marker 3 pos=6200	Parameter menu, Averaging and saving tab	Y		
	Backup parameter file	C:\AMS\AMSCODE\AMSMenu.prm	Y		
	Set save interval	Parameter menu, Averaging and saving tab	Y	0.5 minutes????	
	Reconnect inlet, Close AMS valve	Inlet	Y		
	Start CPC software	PC Desktop	Y		ZERO PARTICLES AS OFF FILTER
	General Alteration mode,Open Inlet	Software, Start after t/o			

AMS PostFlght Setup/Cal Sheet v2.00

DATE: FLIGHT: OPERATOR:

Time:	Action:	Location:	Yes/No:	Notes	Comments:
Pre-land	Stop AMS,Grimm CPC logging	Software	Y	STOPPED CPC	
	Close AMS inlet	Inlet	Y	NOT STOPPED AMS	BUT ON ZERO FF
	Exit Labview		Y		
	Enable CPC in AMS software	Parameter Menu, Serial Ports tab	Y		
Post-land	Set CPC in Low Flow	Shift+totalizer on CPC display	Y		
	Open Inlet		Y		
	Turn off autosave (-ve number)	Parameter Menu,Averaging and saving tab	Y		
	Set mass range scan 0-300	Parameter menu, Mass Spectrometer tab	Y		
	Electron Multiplier Cal	Software, select suitable point manually	Y	Check gain at current V	
	Get tof masses for IE cal	Software,mz selection,left click on row	Y	15,16,17,30,46*	
	Set thresholds In tof mode	Left click "SP thresholds" in left border	Y	wait	
	Mass Range Cal	MS mode, Click Mass Calibration	Y		
	Add m28 to tof list	Software,mz selection,left click on row	Y		
	Run in MS-TOF alteration	Software	Y	Check tof windows	NO CAL
	IE cal after 200 particles	Shift+M while sampling,Calibtrate,Save,Exit		SMPS s=4.1,a=0.41,350nm	AS
	Attach Zero filter to inlet		✓		
	Select tof masses to scan	Software,mz selection,left click on row	DONE	14,16,30,43,44,46,48,57	
	Set thresholds In tof mode	Left click "SP thresholds" in left border	OTO		
	Add m28 to tof list	Software,mz selection,left click on row	FLIGHT		
	General alteration,10 mins	Software, F3 to NonAutoSave	↓	Check tof windows	
	Close inlet				
Data	Copy AutoSaveData folder	Source C:\AMS\AMSData\AutoSaveDate	✓		
		Dest C:\AMS\SAMSData\Summer05\flight	✓		
	Copy NonAutoSaveData folder	Source C:\AMS\AMSData\NonAutoSaveDate	✓		
		Dest C:\AMS\SAMSData\Summer05\flight	✓		
	Copy AMSLogFiles folder	Source C:\AMS\AMSData\AMSLogFiles	✓		
		Dest C:\AMS\SAMSData\Summer05\flight	✓		
	Copy CPC data	Source C:\UCPC\	✓		
		Dest C:\AMS\SAMSData\Summer05\flight	✓		
	Backup directory to DVD/laptop				
	Delete AutoSaveData	Source C:\AMS\AMSData\AutoSaveDate	✓	FILES ONLY, NOT FOLDER	
	Delete NonAutoSaveData	Source C:\AMS\AMSData\AutoSaveDate	✓	FILES ONLY, NOT FOLDER	
	Delete AMSLogFiles	Source C:\AMS\AMSData\AutoSaveDate	✓	FILES ONLY, NOT FOLDER	
	Delete CPC data	Source C:\AMS\AMSData\AutoSaveDate	✓	FILES ONLY, NOT FOLDER	
ShutDown	Turn off Mulitplier & Balzers	Electronics box			
	Turn off all Turbos and PC	Pump Controller Box			
	Shut Backing Valve	Back of rack			
	Turn off heater,chopper,the rest	Electronics box, then power unit and Breakers			

AMS Calibration Log Sheet v2.00

DATE: 22/9/05 FLIGHT: B133 OPERATOR: HC

Tuning

TIME:	Old	New	Typical
Def Inner	18	16	22
Def Outer	9	8	11
Heater Bias	-5.87	-5.68	-6.5
Focus	11.75	12.25	12.5
Extraction	134	142	220

TIME:	Old	New	Typical
Def Inner			22
Def Outer			11
Heater Bias			-6.5
Focus			12.5
Extraction			220

Multiplier Cal

Might have to tweak filament current and multiplier voltage in order to set thresholds in calibration!!!!
This is done in the parameter menu..... Multiplier and Chopper Tab

TIME:	New	Typical
KV		n/a
KV Change		0.025kV
Gain		3.00E+06
G used Change		1

CRD

PRE FLIGHT

TIME:	New	Typical
KV	2.5	n/a
KV Change	0.075	0.025kV
Gain	2.55×10^6	3.00E+06
G used Change	0.88	1

TIME LOCAL 16:36
2.55
0.05
3.02×10^6
1.18

Ionization Efficiency Cal

TIME:	New	Typical
IE (NO3)	2.24×10^6	2.00E-06
RIE (NH4)	3.914	4
IPP NO3	520	400
IPP NH4	571	550
Airbeam MS	2.79×10^6	2.20E+06
Airbeam TOF	2.80×10^6	2.00E+06
Run Number	09:12:09	n/a

TIME:	New	Typical
IE (NO3)		2.00E-06
RIE (NH4)		4
IPP NO3		400
IPP NH4		550
Airbeam MS		2.20E+06
Airbeam TOF		2.00E+06
Run Number		n/a

Filter Run

TIME:	8:10 - 10:28Z
Run number	9891 - 9892

TIME:	
Run number	

AMS Inflight Log Sheet v2.00

DATE: 22/9/05 FLIGHT: B133 OPERATOR: MCC

Time	Event
10:28 GMT	MANUAL SAVE number 9891
	TWO SHORT MANUAL SAVES
10:30 GMT	ON. AUTOSAVE FILTER OFF MAIN SAMPLE ON AND AMS VALVE OPEN.
11:09 GMT	DOH! IN ALTERNATE NOT GENERAL ALTERNATE SO CHANGED
11:10 GMT	ABOVE SMALL CU DECK.
11:34 GMT	5 $\mu g\ m^{-3}$ NO_3 3 $\mu g\ m^{-3}$ SO_4 + 5 $\mu g\ m^{-3}$ OC. NO_3 & ABOVE. SW OF IOW
11:38 GMT	CHECKED PUMPS END OF 500 ft RUN ASCEND TO 1800 ft.
11:45 GMT	AT 1800 LOST NO_3 AND NH_4 NOW ↓ 0.6 and 0.3 respectively
12:05 GMT	V POLLUTED ROUND IENT AND VIS BELOW US V POOR.
12:18 GMT	END OF RUN 10000'. START OF PROFILE UP TO 3500'
12:35 GMT	30 $\mu g\ m^{-3}$ OF NH_4NO_3 AS NH_4NO_3 UP NORFOLK COAST
13:25 GMT	SHORTERS SOME PREP DURING PROFILE ASCENT
14:07 GMT	CLEAN ← 1 $\mu g\ m^{-3}$ NO_3 IN NORTHUMBERLAND
14:12 GMT	ABS MS 2.86 TOF 2.57 JMS 2.70 $\times 10^6$
14:53 GMT	OUT OF BL ON CLIMB OUT HEAD FOR HOME 2000 PF ON.

AMS Diagnostic Log Sheet v2.00

DATE: 22/9/05 FLIGHT: B133 OPERATOR: M OAE

Time

Pump #	I(A)	I (typical)	Speed (%)	Speed typical
1/Alcatel	0.88	0.86	89	98
2	3.4	3.5	100	100
3	1.35	1	100	100
4	0.57	0.5	100	100
5	0.41	0.4	100	100
6	0.62	0.46	100	100

	New	Typical
Heater V		2.5
Heater I		0.9
Heater T		580
Heater B		75V
Multiplier		n/a
Pressure		2 Torr

	New	Typical
I electronics		1A
I turbo		7A
I diaphragm		2A
MS AB		2.2Mhz
TOF AB		2Mhz
Flow		2

Time 11:36Z

Pump #	I(A)	I (typical)	Speed (%)	Speed typical
1/Alcatel	0.89	0.86	89	98
2	3.4	3.5	100	100
3	1.35	1	100	100
4	0.57	0.5	100	100
5	0.41	0.4	100	100
6	0.62	0.46	100	100

	New	Typical
Heater V		2.5
Heater I		0.9
Heater T		580
Heater B		75V
Multiplier		n/a
Pressure		2 Torr

	New	Typical
I electronics		1A
I turbo		7A
I diaphragm		2A
MS AB		2.2Mhz
TOF AB		2Mhz
Flow		2

Time 12:40Z

Pump #	I(A)	I (typical)	Speed (%)	Speed typical
1/Alcatel	0.88	0.86	89	98
2	3.4	3.5	100	100
3	1.35	1	100	100
4	0.57	0.5	100	100
5	0.47	0.4	100	100
6	0.62	0.46	100	100

	New	Typical
Heater V		2.5
Heater I		0.9
Heater T		580
Heater B		75V
Multiplier		n/a
Pressure		2 Torr

	New	Typical
I electronics		1A
I turbo		7A
I diaphragm		2A
MS AB		2.2Mhz
TOF AB		2Mhz
Flow		2

Time 14:02Z

Pump #	I(A)	I (typical)	Speed (%)	Speed typical
1/Alcatel	0.89	0.86	89.4	98
2	3.33	3.5	100	100
3	1.35	1	100	100
4	0.57	0.5	100	100
5	0.41	0.4	100	100
6	0.62	0.46	100	100

	New	Typical
Heater V		2.5
Heater I		0.9
Heater T		580
Heater B		75V
Multiplier		n/a
Pressure		2 Torr

	New	Typical
I electronics		1A
I turbo		7A
I diaphragm		2A
MS AB		2.2Mhz
TOF AB		2Mhz
Flow		2

Flight Manager's Instrument Status Log

Flight No. **B** 133 Date: 22 September 2005

Instrument	Fitted	Operated	Instrument	Fitted	Operated
Navigation			**Cloud Physics**		
INU		**Y**	**Probes**		
XR5M GPS		**Y**	FFSSP		**Y**
Cruciform GPS		**N**	PCASP		**Y**
Satcom C		**Y**	2D-P		**n**
Satcom H		**Y**	2D-C		n
Thermometers			Cloudscope		**N**
De-Iced Temp		**Y**	SID 1		**N**
Non De-Iced		**Y**	SID 2		**N**
Heimann		**N**	HVPS		**N**
Hygrometers			CIP25		**N**
G. Eastern		**Y**	CIP100		**N**
J. Williams		**Y**			
Nevzorov		**Y**			
TWC		**n**			
FWVS		**N**	**Racks:**		
Radiometers			INC		**N**
Upper Clear		**Y**	CCN / CNC		**Y**
" Red		**Y**	CVI		**n**
" Silicon		**Y**			
" JO1D		**Y**	**Aerosol**		
Lower Clear		**Y**	PSAP		**N**
" Red		**Y**	Nephelometer		**N**
" Silicon		**Y**	Filters		**Y**
" JO1D		**Y**	AMS		**Y**
Large Radiometers					
TAFTS		**N**			
MARSS		**N**			
DEIMOS		**N**	**Others:**		
ARIES		**N**	NIR TDLAS		N
SWS		N	2BT O3		N
Chemistry			VACC		N
Ozone		Y	PEROXIDE		N
SO2		Y	Formaldehyde		N
NOX		Y	ADA		N
CO		Y	CPI		N
ORAC		N	NOxy		N
PAN		n	PTRMS		N
PERCA		N	Bag Sampling		Y
WAS		n	Tube Sampling		N

Faults / Incidents Log

Flight No. B133
Date: 22 September 2005

Instruments

1 TWC not fitted
2 Unable to load tapes on outboard video recorder

Aircraft

Satcom H Calls nil

MISSING LOG SHEETS:

The following logs are not available for flight B133:

Log	Reason
De-brief	Sortie De-brief yet to be created by Eiko Nemitz
CVI	No log is ever taken for CVI

VIDEO RECORDINGS:

Digital8 video recordings from this flight reside with FAAM (at 31 Oct 2005) :

4 x Forward / Downward Facing Cameras